WTVB02-485 Vibration Sensor User Manual

Product Specifications:

Model: WT-VB02-485

Description: Vibration Sensor

product	Cut-off frequency	Detection cycle	Vibration speed	Accuracy	Sampling rate
VB01-485	0～100Hz	1～100Hz	Vibration speed: 0~50mm/s	<FS±5%	1KHz
VB02-485	0～200Hz	1～200Hz	Vibration speed: 0~100mm/s	<FS±4%	16KHz

1. Product Overview

1. The module has its own voltage stabilization circuit, the working voltage is 5V~36V, and the connection is convenient.

2. The use of advanced digital filtering technology can effectively reduce measurement noise and improve measurement accuracy.

3. At the same time, we provide users with various host computers, instructions for use, and development manuals, so as to minimize the R&D time for various needs.

4. Support 485 interface. It is convenient for users to choose the best connection method. The serial port rate is adjustable from 4800bps to 230400bps, the cut-off frequency is adjustable from 0 to 200Hz, and the detection period is adjustable from 1 to 200Hz.

5. Application areas: It can be widely used in bearing vibration measurement and real-time monitoring of rotating machinery such as submersible pumps, fans, steam turbines, coal mills, oxygen generators, generators, centrifuges, compressors, water pumps, motors, etc.

6. The three-axis displacement, three-axis speed, and three-axis frequency outputs can satisfy users' all-round measurement of vibration and impact, and determine whether the measured object (motor water pump) is damaged. If there is a machine failure caused by bearing wear, bearing cracking, poor dynamic balance, and misalignment, the vibration sensor can detect the failure in advance and issue an early warning to prevent the machine from continuing to work under bad conditions and causing damage, thereby causing economic losses.

7. Multiple installation methods: magnetic connection, threaded connection. Firm and stable, easy to install and disassemble.

8. Stud bolts with positive and negative threads: stainless steel hexagonal stud bolts with positive and negative threads, stud screws, left-handed and right-handed bidirectional screws

2. Parameter indicators

Basic parameters

parameter	condition	Minimum	default	Maximum
Communication	485 interface	4800bps	9600bps	230400bps

Interface				
Output		On-chip time, 3-axis vibration velocity, 3-axis vibration displacement, vibration frequency, temperature		
Range		Measuring range: vibration speed: 0~100mm/s, vibration displacement: 0~30000um, vibration frequency 1-2000Hz		
Accuracy		<FS±4%		
Detection cycle		1Hz	100Hz	200Hz
Cut-off frequency		0Hz	10Hz	200Hz
Operating temperature		-40℃		85℃
storage temperature		-40℃		85℃
Shock proof				20000g
Protection level				IP67

Electrical parameters

parameter	condition	Minimum	default	Maximum

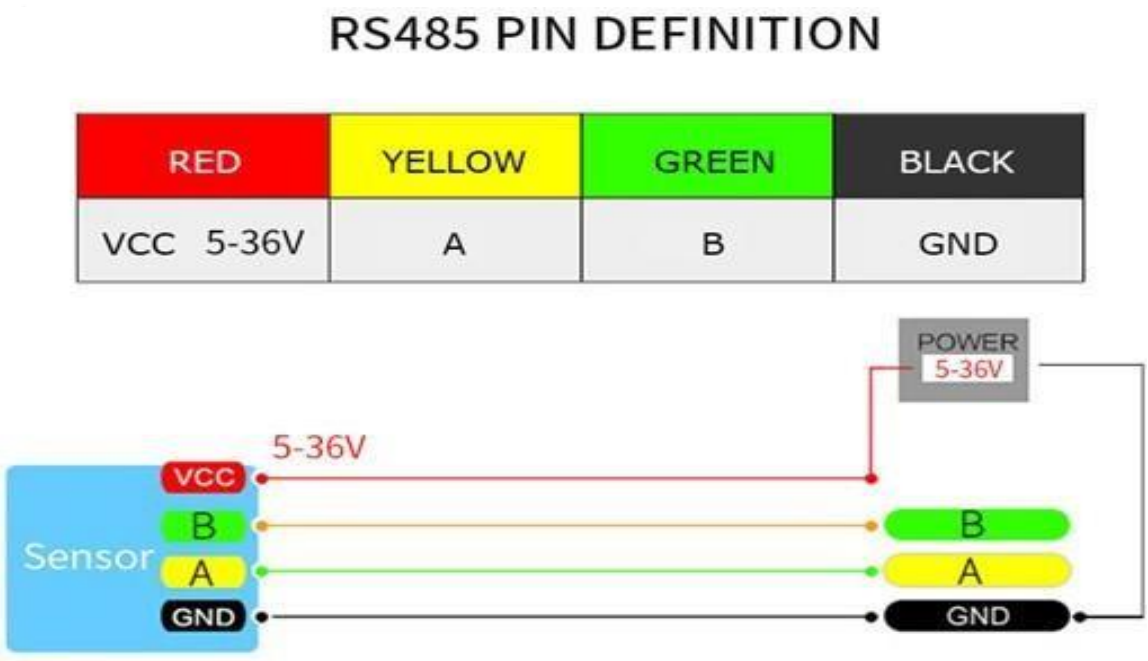
Supply voltage		5V	12V	36V
Working current	Working (12V)		12mA	

Vibration velocity: the speed at which the vibration point of an object moves when it vibrates

Amplitude: The amplitude of the vibration point when the object vibrates (vibration displacement)

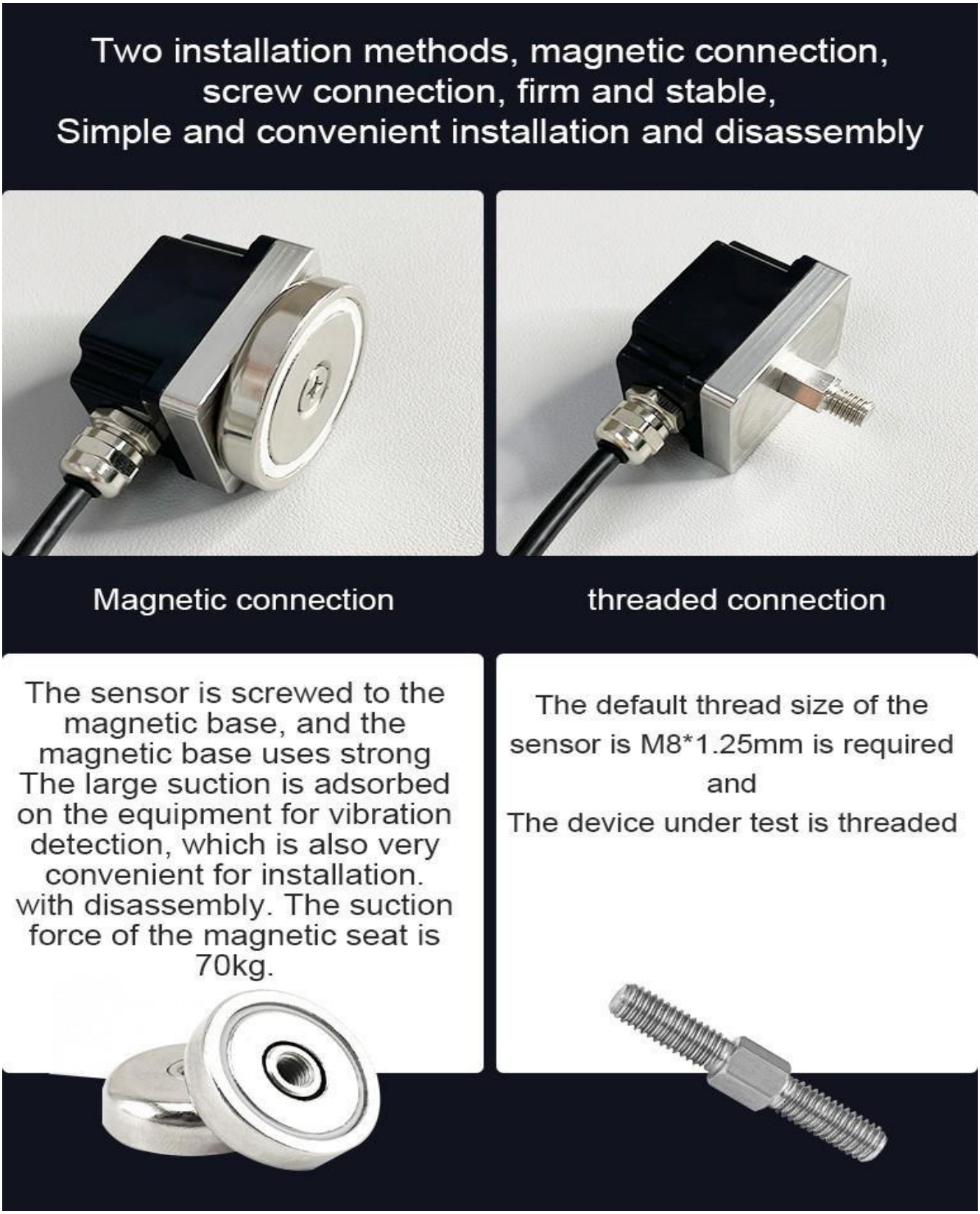
Vibration frequency: The number of times an object shakes per unit time when it vibrates . The vibration frequency measurement range is 1Hz~1000Hz

3. Hardware connection method



Nut purchase link

Nut Link

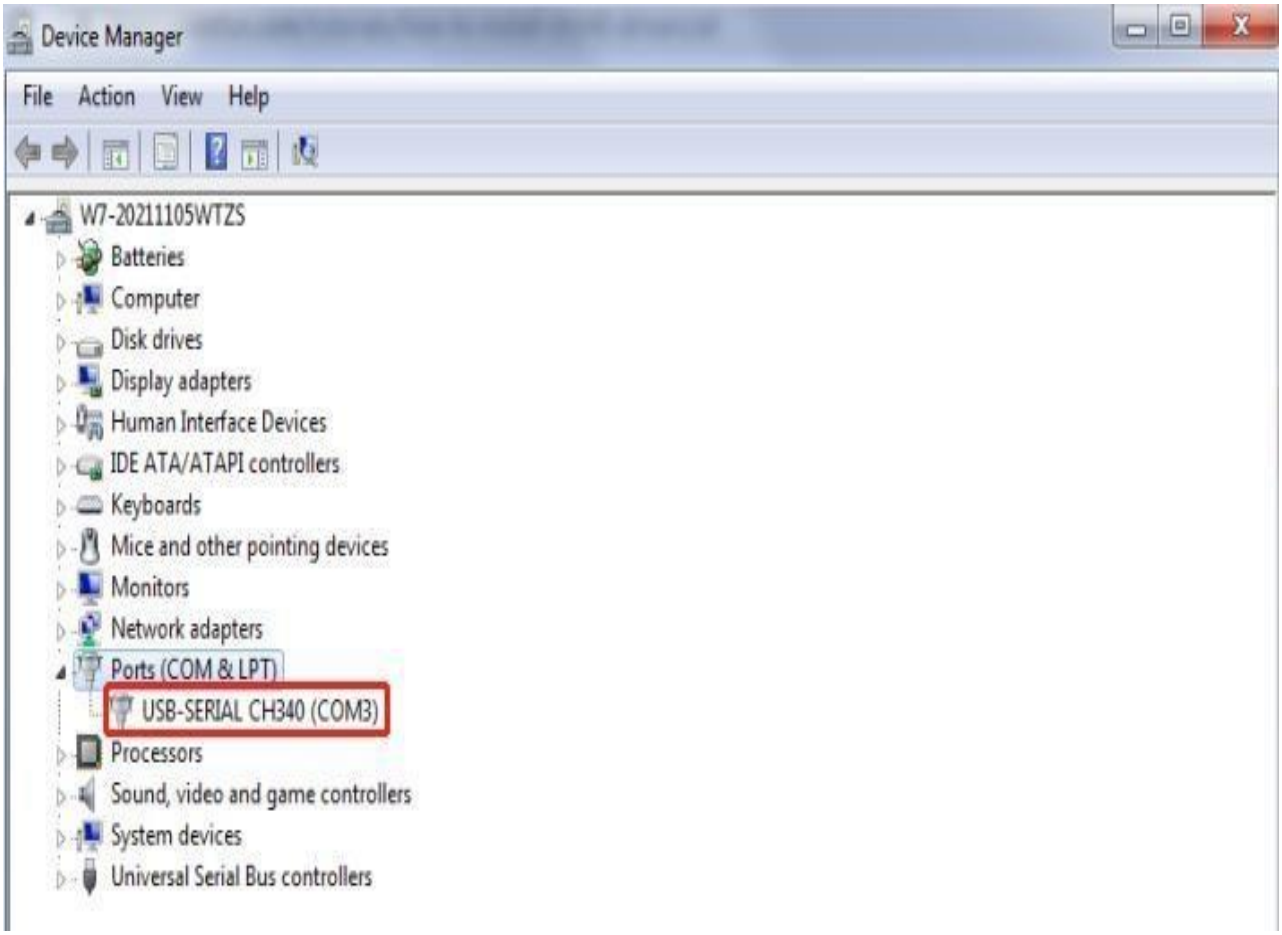


Thread size

4. How to use the software

4.1 CH340 driver installation

Note: If the host computer cannot run, please download and install .net framework4.0:



Connect the USB to CAN module to the computer, turn on the host computer, install the CH340 driver corresponding to the serial port module (CH340 driver download), and then you can query the corresponding port number in the device manager, as shown in the figure:

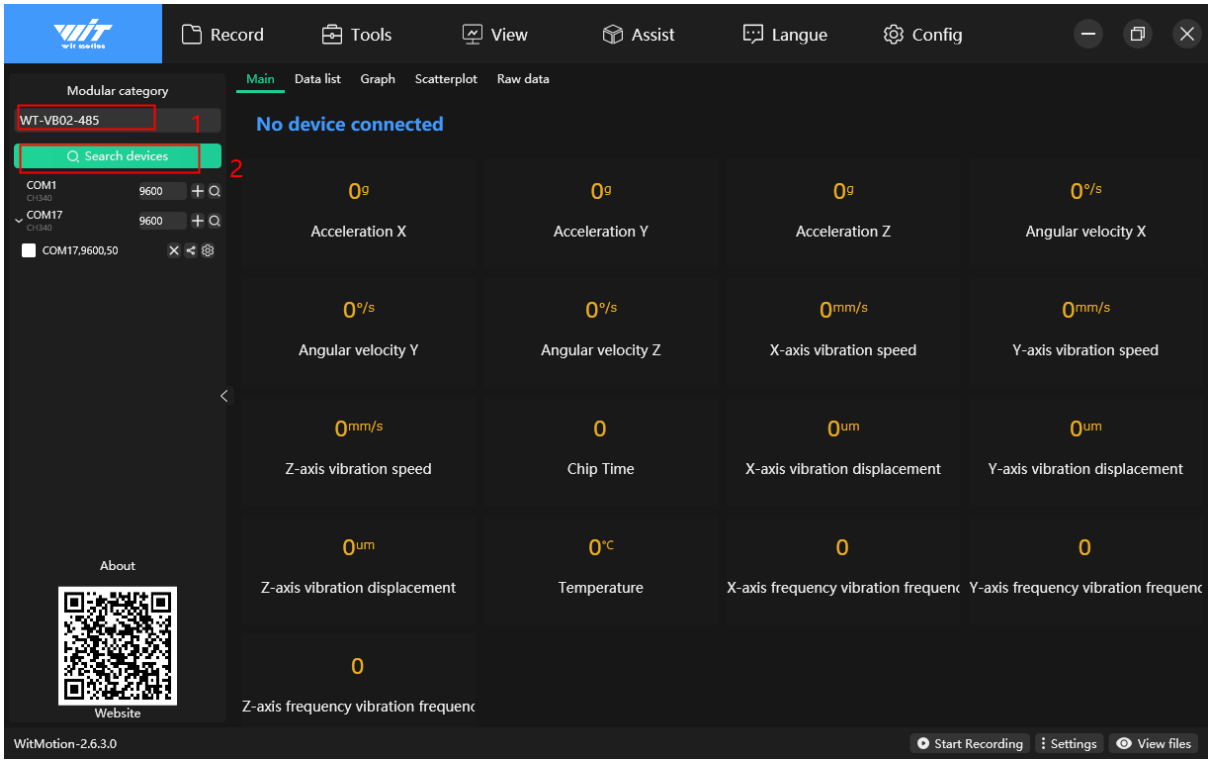
After the device is connected, open the Witt intelligent host computer software (the software can be downloaded from the document website , here we take WTVB01-485 as an example);

4.2 Connect to the host computer

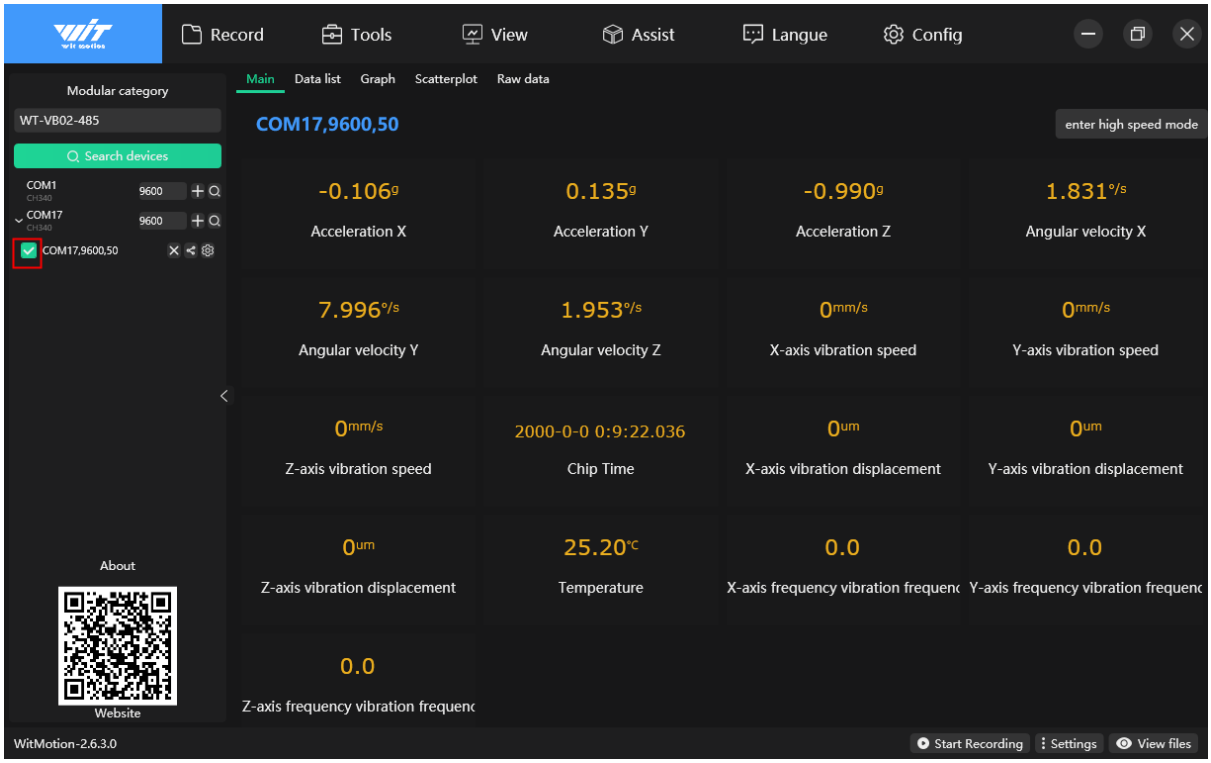
1. Automatic search

1. Search for the corresponding sensor model.

2. Click Search device.



After the connection is successful, the data can be displayed on the software, as shown below:



2. Manual connection

1. Select the corresponding model.

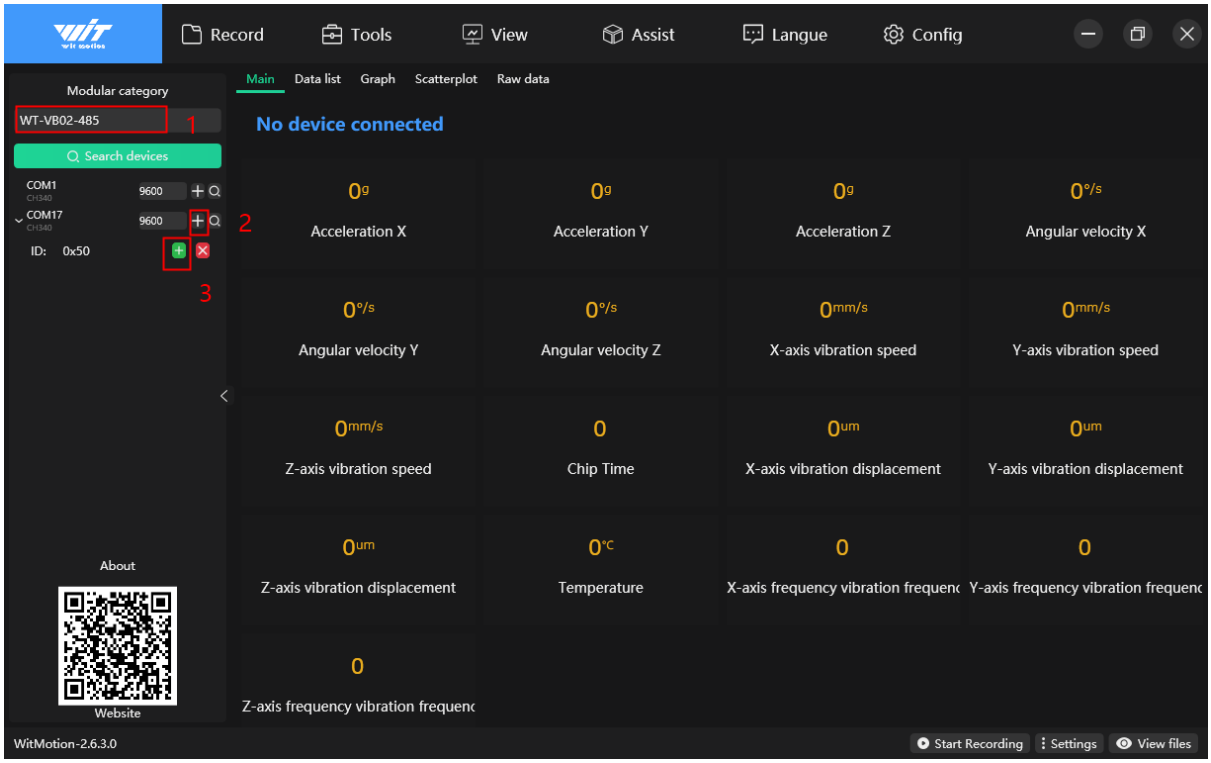
2. Select the corresponding port.

Select the baud rate of the module (the default baud rate is 9600).

3. Enter the corresponding ID (the default is 0x50).

Click Add Device

As shown below:

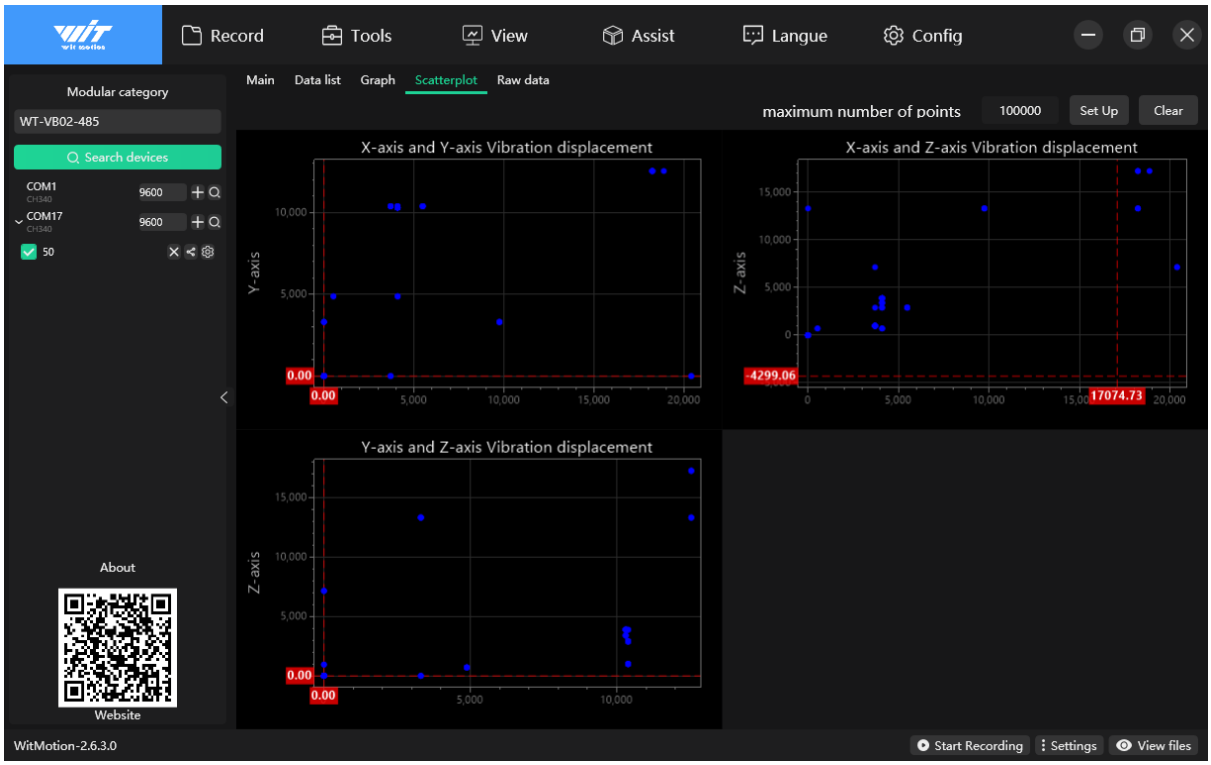


4.3 Graph

Click on the graph to see the graphs of vibration speed, vibration angle, vibration displacement and temperature (normal mode); in high-speed mode, only the vibration displacement graph has data, as shown below:

4.4 Scatter plot

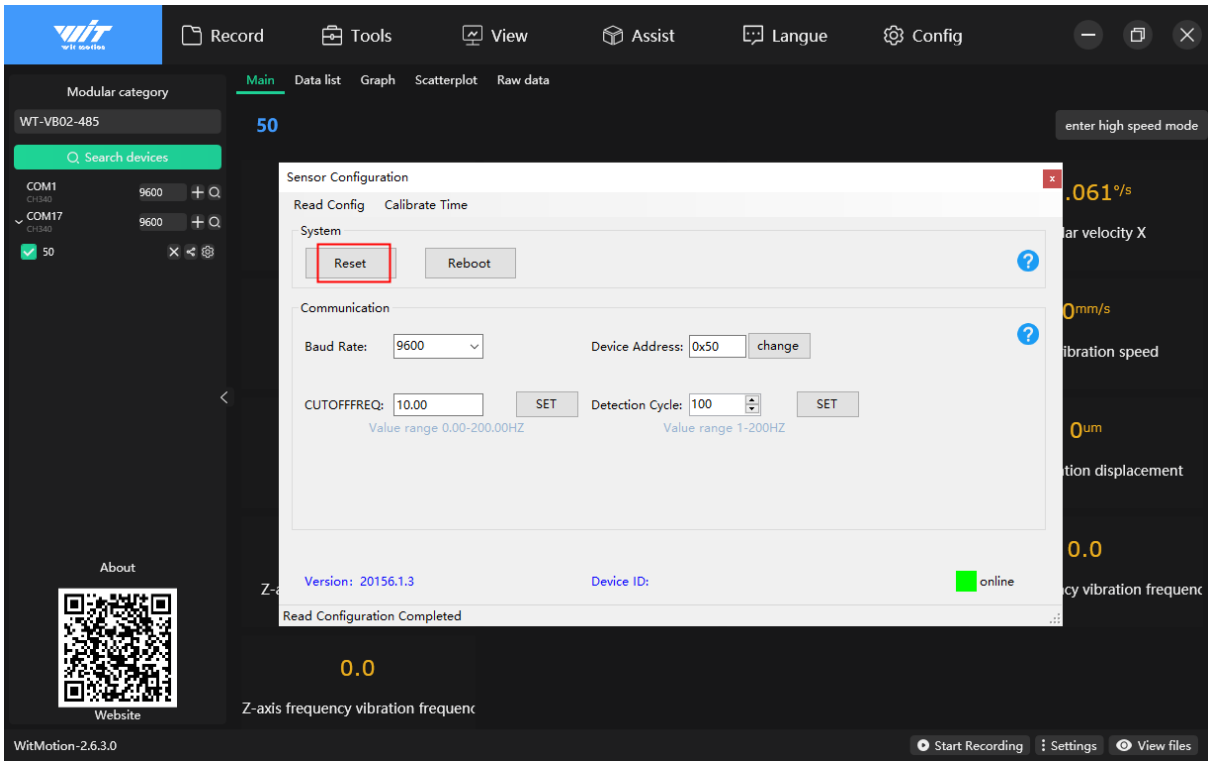
If you need to obtain a complete vibration displacement scatter plot, it is recommended to use high-speed mode to view it.



5. Software Configuration

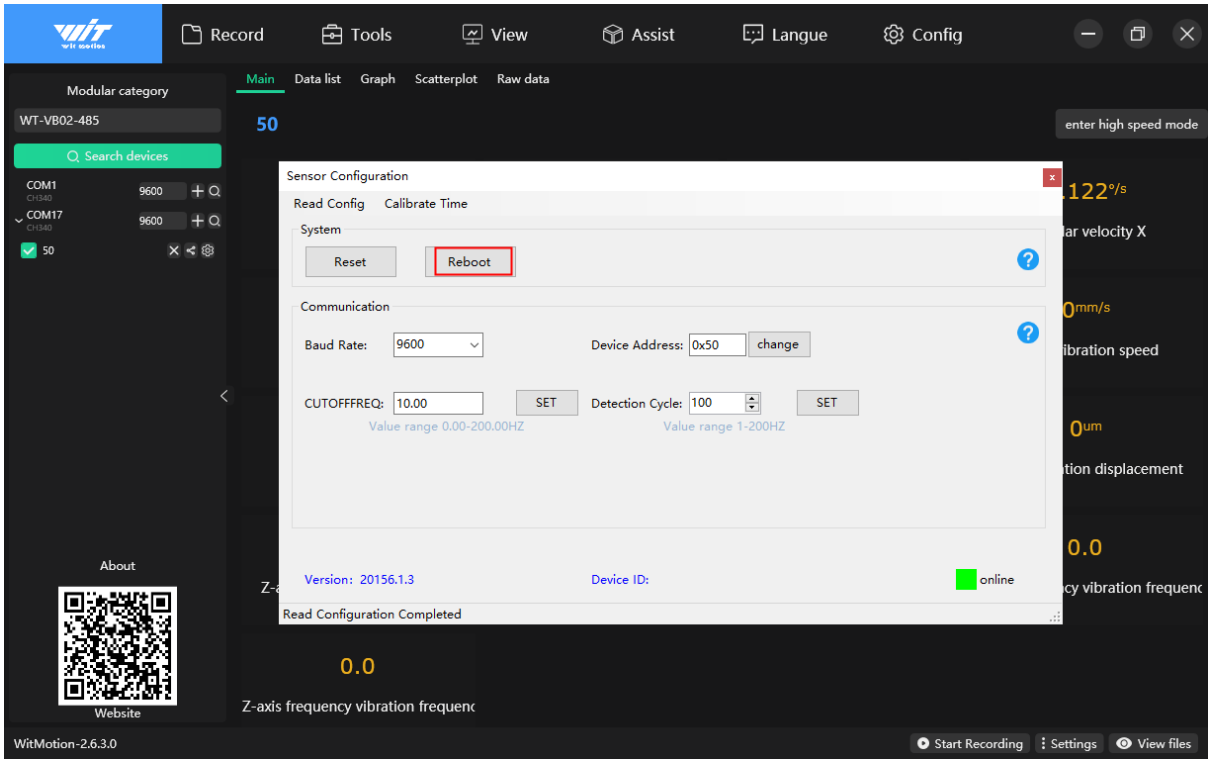
5.1 Restore settings

Click "Configuration" and then click "Restore Settings" in the sensor configuration interface to restore the factory settings, as shown in the following figure:



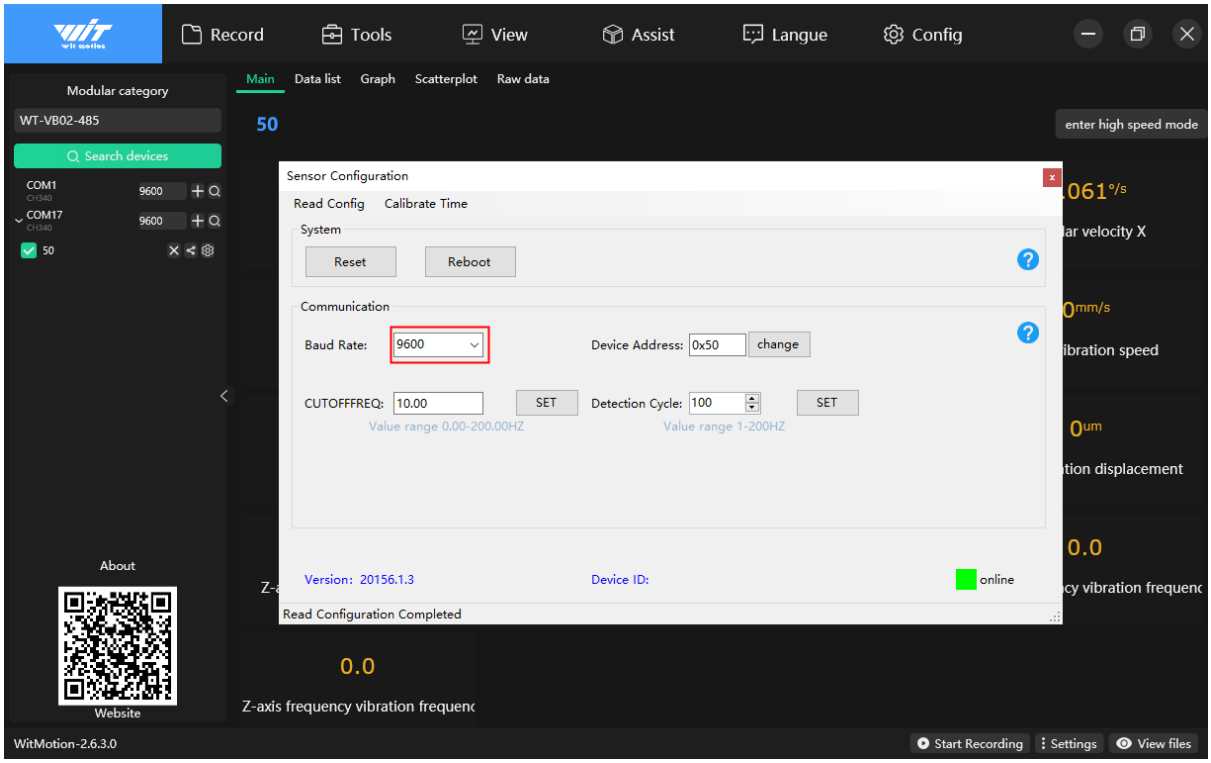
5.2 Restart

Click "Configure", and then click "Restart" in the sensor configuration interface to restart the sensor, as shown in the following figure:



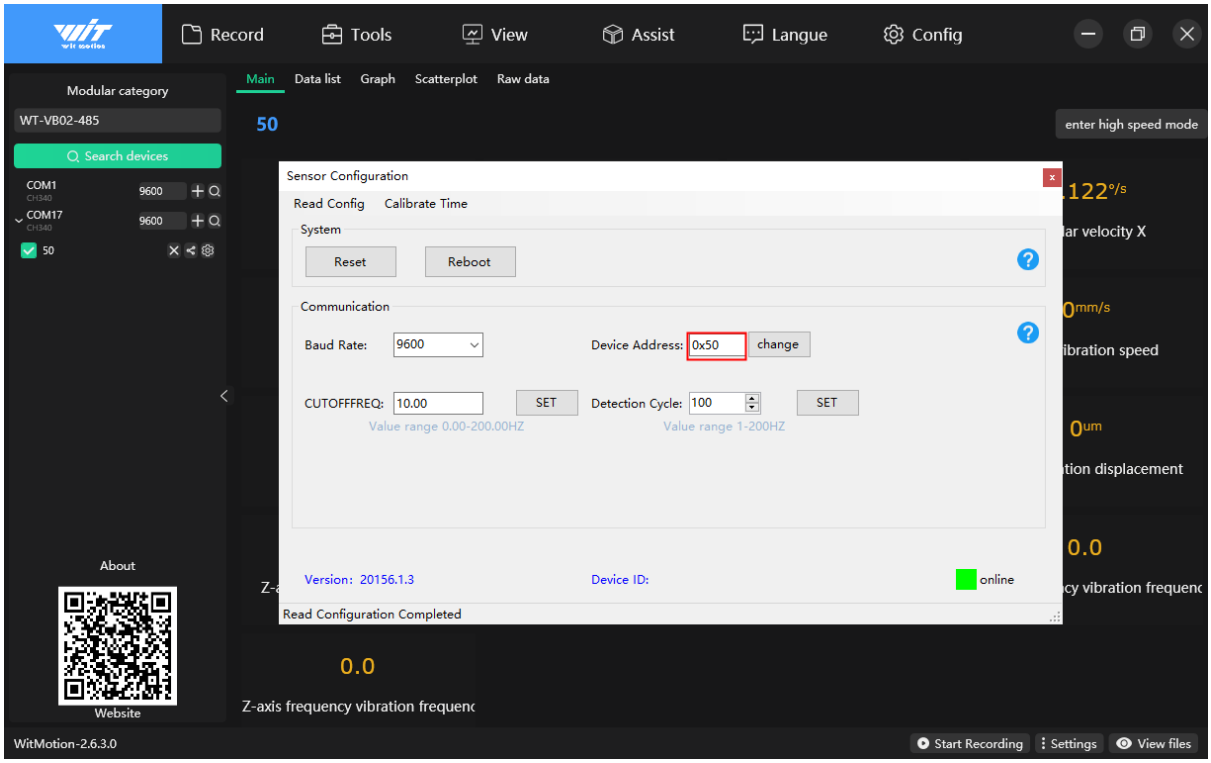
5.3 Communication Rate

Open "Configuration", click the drop-down menu of "Serial Port Baud Rate" in the sensor configuration interface, select the serial port baud rate to be modified, and you can change the current serial port baud rate (the default serial port baud rate is 9600). The serial port baud rate can be 4800, 9600, 19200, 38400, 57600, 115200, 230400, as shown in the following figure:



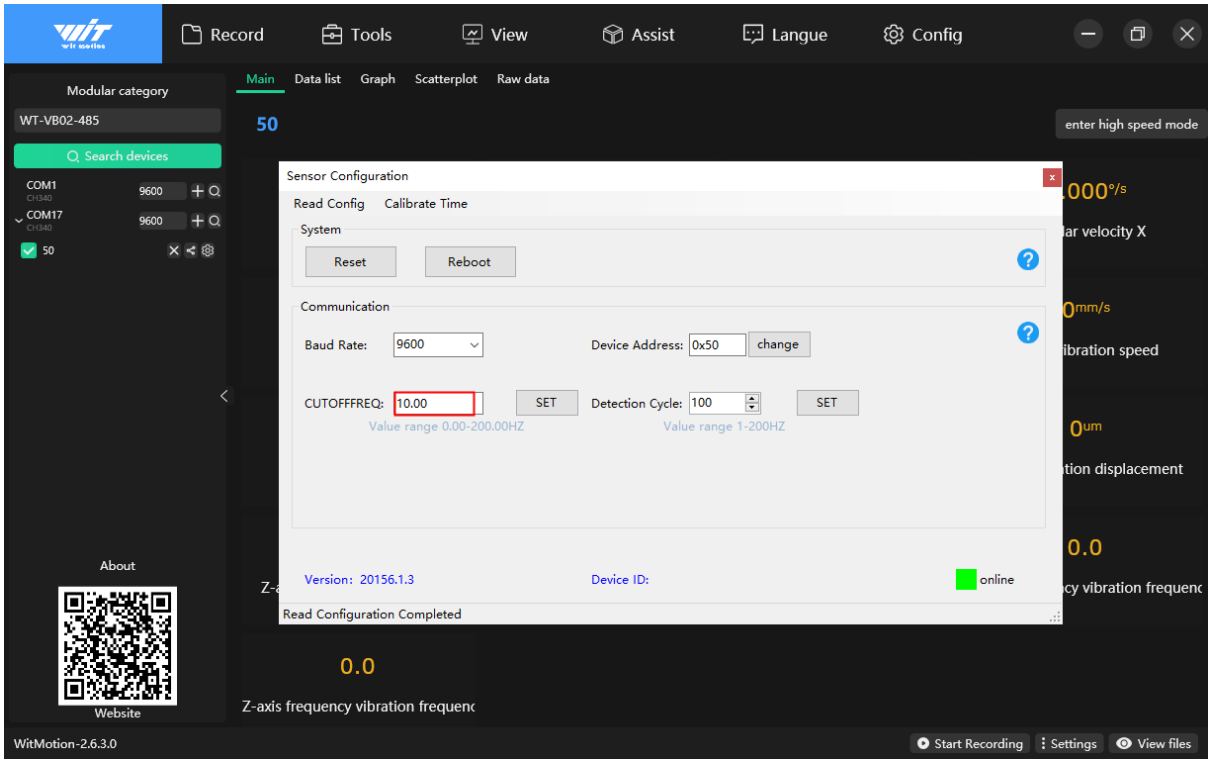
5.4 Device Address

Open "Configuration", click the "Modbus Address" input box in the sensor configuration interface, enter the Modbus address and then click Set to change the Modbus address (the default Modbus address is 0x50). The Modbus address ranges from 0x00 to 0x7F, as shown in the figure:



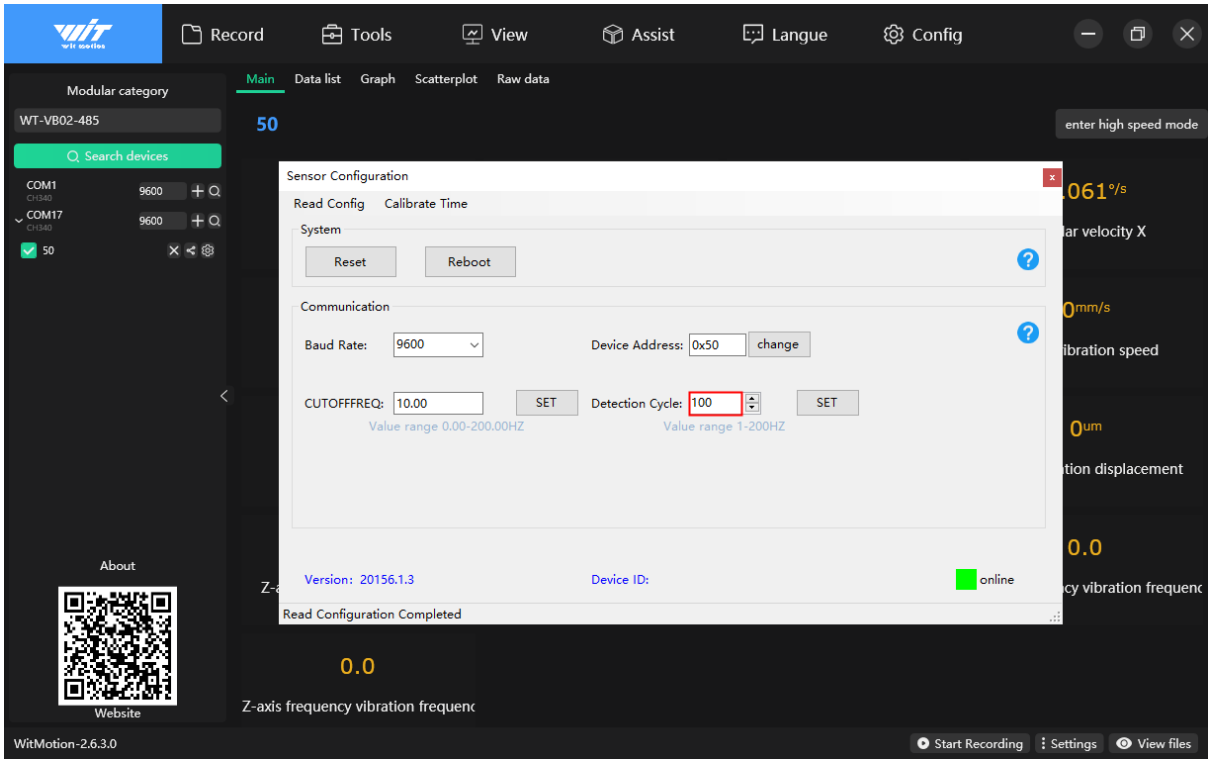
5.5 Cut-off frequency

Open "Configuration", click the drop-down menu of "Cutoff Frequency" in the sensor configuration interface, select the corresponding cutoff frequency, and you can set the cutoff frequency (the default cutoff frequency is 10.0Hz). Our cutoff frequency is used like this (using a sinusoidal signal to excite, constantly changing the frequency, and the frequency corresponding to the output amplitude dropping to 0.707 times the input amplitude is the cutoff frequency. The frequency range where the output amplitude is greater than or equal to 0.707 times the input amplitude is the operating frequency range. We change the cutoff frequency to filter out clutter of other frequencies. For example, if the frequency of other clutter is 30Hz and the sensor works at 50Hz, you may wish to set the cutoff frequency to 40.0, 50.0Hz). The host computer modification is shown in the figure:



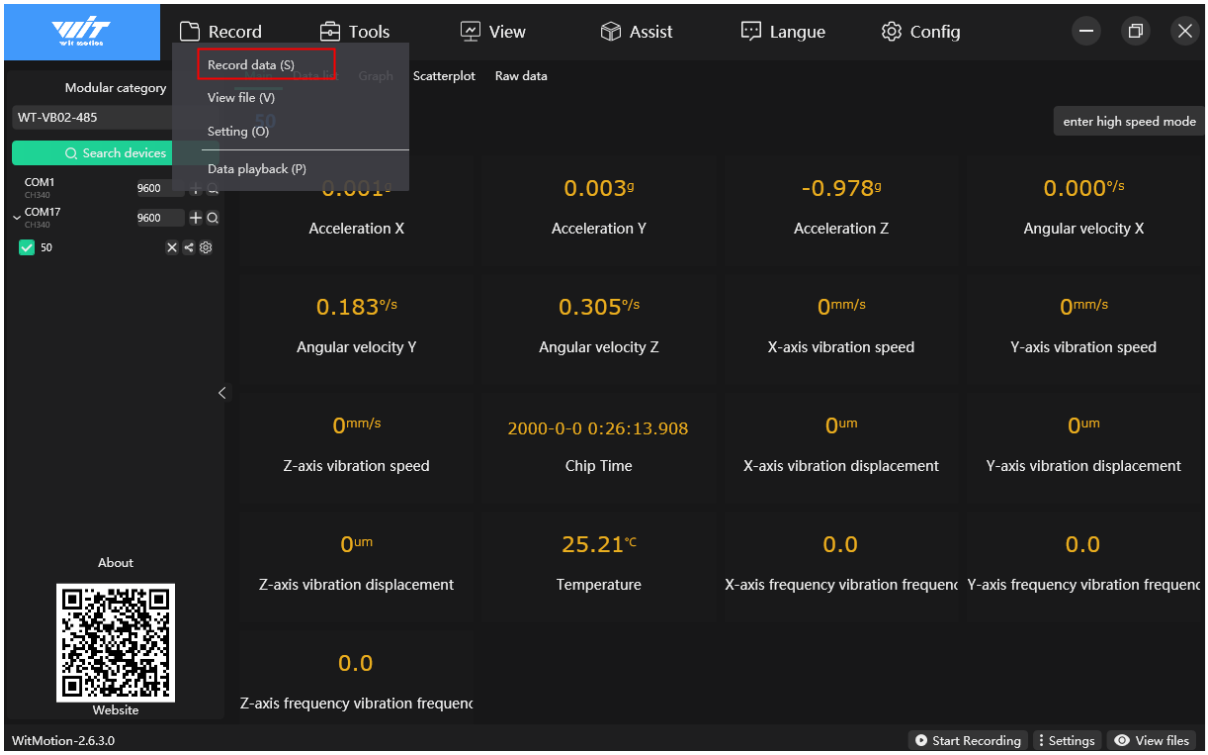
5.6 Detection cycle

Open "Configuration", click the drop-down menu of "Detection Cycle" in the sensor configuration interface, select the corresponding detection cycle, and then set the detection cycle （The detection cycle is: data processing within 1S and output of the maximum value within 1S, not how many Hz for how many sampling data.）, as shown in the figure:



5.7 Recording Data

Open "Record" and click "Start Recording" to record the output data of the sensor.

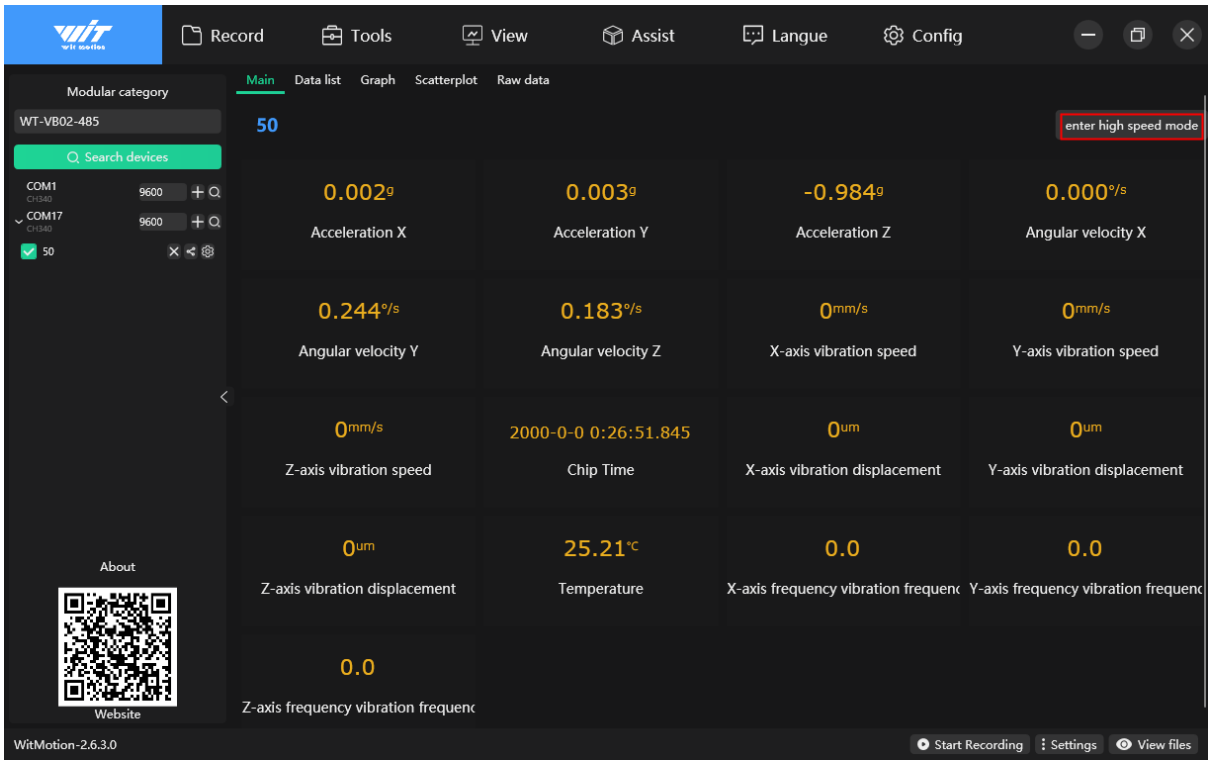


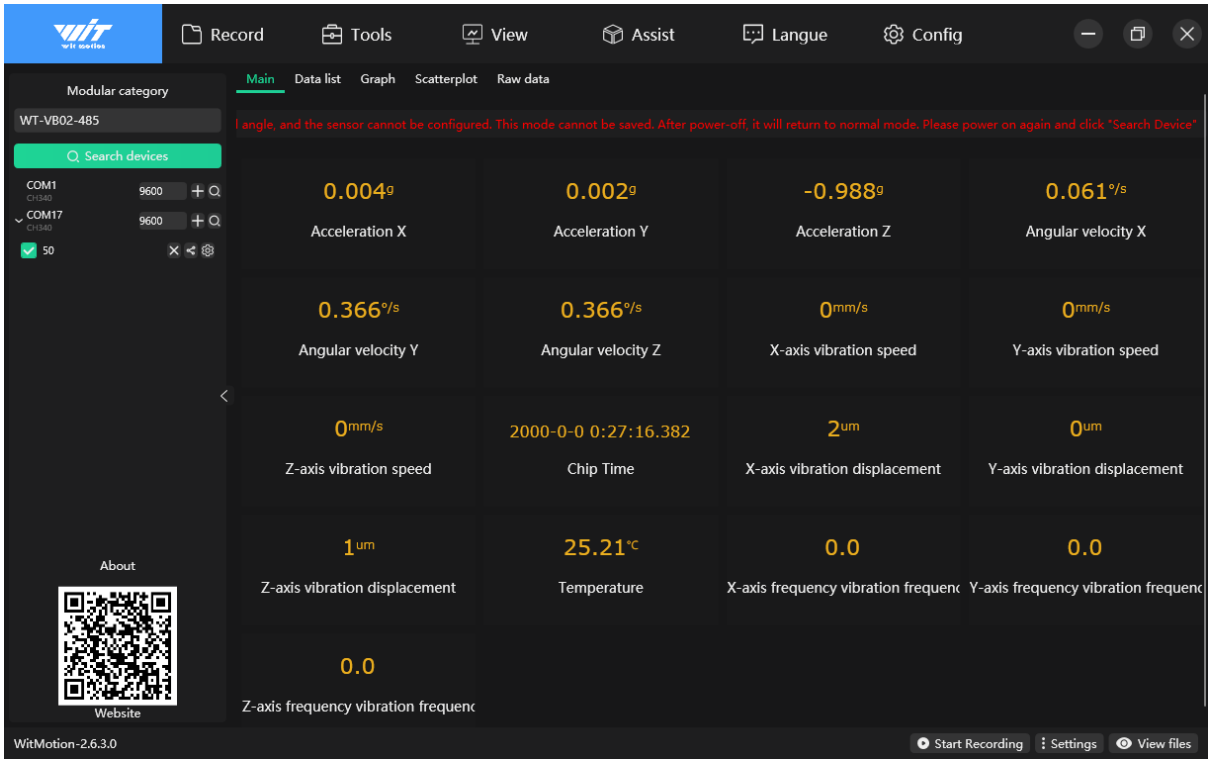
5.8 High-speed mode

Note: High-speed mode actively outputs vibration displacement data at high speed, which can be used to analyze complex motion trajectories.

Operation: Click the high-speed mode button, the sensor will enter the high-speed active output mode (1000Hz), only output the three-axis high-frequency vibration displacement, and the baud rate of the sensor will automatically switch to 230400.

Configuration is not possible at this time. If you want to restore normal mode, you can power on the sensor again and search or add devices again.





6. Communication Protocol

Protocol: MODBUS protocol

Level: 485 level (default baud rate: 9600)

6.1 Read Register Format

- The data is sent in hexadecimal format, not ASCII.
- Each register address, register number, and data are represented by two bytes. The high and low bits of the register address are represented by ADDRH and ADDRL, the high and low bits of the register number are represented by LENH and LENL, and the high and low bits of the data are represented by DATA1H and DATA1L.
- The last two digits of the read instruction are standard CRC check bits. You can use the CRC check bit calculation tool to calculate it. CRC online calculation website .

Send command

Modbus Address	function code	Register high 8 bits	Register lower 8 bits	Read length high 8 bits	Read length lower 8 bits	Check digit high 8 bits	Check digit lower 8 bits
ID	0x03 (Read)	ADDRH[15:8]	ADDRL[7:0]	LENH[15:8]	LENL[7:0]	CRCH[15:8]	CRCL[7:0]

Data return

Modbus Address	function code	Read length	Data high 8 bits	Data lower 8 bits	Data high 8 bits	Data lower 8 bits	Data high 8 bits	Data lower 8 bits	Check digit high 8 bits	Check digit lower 8 bits
ID	0x03 (Read)	LEN[7:0]	DATA1H[15:8]	DATA1L[7:0]	...	...	DATAnH	DATAnL	CRCH[15:8]	CRCL[7:0]

6.2 Write Register Format

- The data is sent in hexadecimal format, not ASCII.
- Each register address and write data are represented by two bytes. The high and low bits of the register address are represented by ADDRH and ADDRL, and the high and low bits of the write data are represented by DATAH and DATAL.

Send command

Modbus Address	function code	Register high 8 bits	Register lower 8 bits	Data high 8 bits	Data lower 8 bits	Check digit high 8 bits	Check digit lower 8 bits
ID	0x06 (Write)	ADDRH[15:8]	ADDRL[7:0]	DATAH[15:8]	DATAL[7:0]	CRCH[15:8]	CRCL[7:0]

Data return

Modbus Address	function code	Register high 8 bits	Register lower 8 bits	Data high 8 bits	Data lower 8 bits	Check digit high 8 bits	Check digit lower 8 bits
ID	0x06 (Write)	ADDRH[15:8]	ADDRL[7:0]	DATAH[15:8]	DATAL[7:0]	CRCH[15:8]	CRCL[7:0]

Note:

The instruction writing operation needs to be performed in three steps.

The first step is to unlock 0x50 0x06 0x00 0x69 0xB5 0x88 0x22 0xA1. The unlocking will take effect within ten seconds.

The second step is to send the instructions that need to be modified.

The third step is to save the instruction 0x50 0X06 0X00 0X00 0X00 0X84 0X4B. The flow chart is as follows.

6.3 Register Address Table

address	symbol	meaning
0x00	SAVE	Save/Restart/Restore to Factory
0x04	BAUD	Serial port baud rate
0x1A	IICADDR	Device Address
0x30	YYMM	Month Year
0x31	DDH	Date

0x32	MMSS	Seconds and minutes
0x33	MS	millisecond
0x34	AX	X-axis acceleration
0x35	AY	Y-axis acceleration
0x36	AZ	Z- axis acceleration
0x3A	VX	X-axis vibration speed
0x3B	VY	Y-axis vibration speed
0x3C	VZ	Z-axis vibration speed
0x40	TEMP	Product temperature
0x41	DX	X-axis vibration displacement
0x42	DY	Y-axis vibration displacement
0x43	DZ	Z-axis vibration displacement
0x44	HX	X-axis vibration frequency
0x45	HkDJ	Y-axis vibration frequency
0x46	HZZ	Z-axis vibration frequency
0x47	FDNFX	X-axis vibration displacement (high speed mode)

0x48	FDNFY	Y-axis vibration displacement (high speed mode)
0x49	FZD	Z-axis vibration displacement (high speed mode)
0x62	MODBUSMODEL	High-speed mode
0x63	CUTOFFFREQI	Cutoff frequency integer
0x64	CUTOFFFREQF	Cutoff frequency fraction
0x65	SAMPLEFREQ	Detection cycle

6.4 Register Description

All the following examples are instructions when the Modbus address is 0x50 (default). If you change the Modbus address, you need to change the address and CRC check bit in the instruction accordingly.

SAVE (Save/Restart/Restore to Factory)

Register Name: SAVE

Register address: 0 (0x00)

Read/write direction: R/W

Default value: 0x0000

Bit	NAME	FUNCTION
15:0	SAVE[15:0]	Save: 0x0000

		Restart: 0x00FF Factory Reset: 0x0001
Example: Send: 50 06 00 69 B5 88 22 A1 (unlocked within 10S) Return: 50 06 00 69 B5 88 22 A1 50 06 00 00 00 FF C4 0B (Restart) Return: 50 06 00 00 00 FF C4 0B		

BAUD (serial port baud rate)

Register name: BAUD **Register address: 4 (0x04)** **Read/write direction: R/W** **Default value: 0x0002**		
Bit	NAME	FUNCTION
15:4		
3:0	BAUD[3:0]	Set the serial port baud rate: 0001(0x01): 4800bps 0010(0x02): 9600bps 0011(0x03): 19200bps 0100(0x04): 38400bps 0101(0x05): 57600bps

		0110(0x06): 115200bps 0111(0x07): 230400bps
Example: Send: 50 06 00 69 B5 88 22 A1 (unlocked within 10S) Return: 50 06 00 69 B5 88 22 A1 50 06 00 04 00 06 45 88 (set the serial port baud rate to 115200) 50 06 00 00 00 00 84 4B (saved at 115200baud) returns: 50 06 00 00 00 00 84 4B		

IICADDR (device address)

Register Name: IICADDR

Register address: 26 (0x1A)

Read/write direction: R/W

Default value: 0x0050

Bit	NAME	FUNCTION
15:8		
7:0	IICADDR[7:0]	Set the device address, used for I2C and Modbus communication, use 0x01~0x7F
Example: Send: 50 06 00 69 B5 88 22 A1 (unlocked within 10S) Return: 50 06 00 69 B5 88 22 A1 50 06 00 1A 00 02 24 4D (set device address to 0x02) returns: 50 06 00 1A		

00 02 24 4D

02 06 00 69 B5 88 2F 13 (Unlocking is effective within 10S) Return: 02 06 00 69 B5 88 2F 13

02 06 00 00 00 00 89 F9 (Save) Return: 02 06 00 00 00 00 89 F9

YYMM~MS (on-chip time)

Register name: YYMM~MS

Register address: 48~51 (0x30~0x33)

Read/write direction: R/W

Default time: (2015, 1, 1, 00, 00, 59, 00)

Bit	NAME	FUNCTION
15:8	YYMM[15:8]	moon
7:0	YYMM[7:0]	Year
15:8	DDHH[15:8]	hour
7:0	DDHH[7:0]	day
15:8	MMSS[15:8]	Second
7:0	MMSS[7:0]	point
15:0	MS[15:0]	millisecond

Example:

50 06 00 69 B5 88 22 A1 (Unlocking is effective within 10S) Return: 50 06 00 69 B5 88 22 A1

Send: 50 06 00 30 03 16 05 7A (set year and month 22-03)

Return: 50 06 00 30 03 16 05 7A

Send: 50 06 00 31 09 0C D3 D1 (set date and time 12-09)

Return: 50 06 00 31 09 0C D3 D1

Send: 50 06 00 32 3A 1E B7 2C (set minutes and seconds to 30:58)

Return: 50 06 00 32 3A 1E B7 2C

Send: 50 06 00 33 01 F4 74 53 (set milliseconds to 500)

Return: 50 06 00 33 01 F4 74 53

50 06 00 00 00 00 84 4B (save) returns: 50 06 00 00 00 00 84 4B

AX~AZ (acceleration)

Register name: AX~AZ

Register address: 52~54 (0x34~0x36)

Read/write direction: R

Default value: 0x0000

Bit	NAME	FUNCTION
15:0	AX[15:0]	Acceleration X = AX[15:0]/32768*16g (g is the acceleration due to gravity, which can be 9.8m/s2)

15:0	AY[15:0]	Acceleration Y = AY[15:0]/32768*16g (g is the acceleration due to gravity, which can be 9.8m/s2)
15:0	AZ[15:0]	Acceleration Z = AZ[15:0]/32768*16g (g is the acceleration due to gravity, which can be 9.8m/s2)

Example:

Send: 50 03 00 34 00 03 49 84 (read three-axis acceleration)

Return: 50 03 06 AXH AXL AYH AYL AZH AZL CRCH CRCL

AX[15:0]=((short)AXH <<8)|AXL;

AY[15:0]=((short)AYH <<8)|AYL;

AZ[15:0]=((short)AZH <<8)|AZL;

VX~VZ (vibration speed)

Register name: VX~VZ

Register address: 58~60 (0x3A~0x3C)

Read/write direction: R

Default value: 0x0000

Bit	NAME	FUNCTION
15:0	VX[15:0]	Vibration speed VX (mm/S) = ((VXH << 8) | VXL)
15:0	VY[15:0]	Vibration velocity VY (mm/S) = ((VYH << 8) | VYL)
15:0	VZ[15:0]	Vibration velocity VZ (mm/S) =((VZH << 8)| VZL)

Example: Send: 50 03 00 3A 00 03 28 47 (read the three-axis vibration speed)

Return: 50 03 06 VXH VXL VYH VYL VZH VZL CRCH CRCL

VX[15:0]=(((short)VXH <<8)|VXL);

VY[15:0]=(((short)VYH <<8)|VYL);

VZ[15:0]=(((short)VZH <<8)|VZL);

Reserve

Register Name: Reserved

Register address: 61~63 (0x3D~0x3F)

Read/Write Direction: R

Default value: 0x0000

TEMP(Temperature)

Register Name: TEMP

Register address: 64 (0x40)

Read/Write Direction: R

Default value: 0x0000

Bit	NAME	FUNCTION

15:0	TEMP[15:0]	Temperature = TEMP[15:0]/100°C
Example: Send: 50 03 00 40 00 01 88 5F (read chip temperature) Return: 50 03 02 TEMPH TEMPL CRCH CRCL TEMP[15:0]=(((short)TEMPH <<8)|TEMPL);		

DX~DZ (vibration displacement)

Register name: DX~DZ

Register address: 65~67 (0x41~0x43)

Read/Write Direction: R

Default value: 0x0000

Bit	NAME	FUNCTION
15:0	DX[15:0]	Vibration displacement DX(um)=((DXH << 8)| DXL)
15:0	DY[15:0]	Vibration displacement DY(um)=((DYH << 8)| DYL)
15:0	DZ[15:0]	Vibration displacement DZ(um)=((DZH << 8| DZL)

Example: Send: 50 03 00 41 00 03 58 5E (read triaxial vibration displacement)

Return: 50 03 06 DXH DXL DYH DYL DZH DZL CRCH CRCL

DX[15:0]=(((short)DXH <<8)|DXL);

DY[15:0]=(((short)DYH <<8)|DYL);

DZ[15:0]=(((short)DZH <<8)|DZL);

HZX ~ HZZ (vibration frequency)

Register name: HZX~HZZ

Register address: 68~70 (0x44~0x46)

Read/Write Direction: R

Default value: 0x0000

Bit	NAME	FUNCTION
15:0	HZX[15:0]	Vibration frequency HZX(Hz)=((HZXH << 8)| HZXL)/10
15:0	HZY[15:0]	Vibration frequency HZY(Hz)=((HZYH << 8)| HZYL)/10
15:0	HZZ[15:0]	Vibration frequency HZZ(Hz)=((HZZH << 8| HZZL)/10

Example: Send: 50 03 00 44 00 03 48 5F (read the three-axis vibration frequency)

Return: 50 03 06 HZXH HZXL HZYH HZYL HZZH HZZL CRCH CRCL

HZX[15:0]=(((short)HZXH <<8)|HZXL);

HZY[15:0]=(((short)HZYH <<8)|HZYL);

HZZ[15:0]=(((short)HZZH <<8)|HZZL);

FDNFX ~ FDNFZ (High-speed mode vibration displacement)

Register name: FDNFX~FDNFZ

Register address: 71~73 (0x47~0x49)

Read/Write Direction: R

Default value: 0x0000

Bit	NAME	FUNCTION
15:0	FDNFX[15:0]	High frequency vibration displacement FDNFX(um)=((FDNFXH << 8)| FDNFXL)
15:0	FDNFY[15:0]	High frequency vibration displacement FDNFY(um)=((FDNFYH << 8)| FDNFYL)
15:0	FDNFZ[15:0]	High frequency vibration displacement FDNFZ(um)=((FDNFZH << 8| FDNFZL)

Example: Send: 50 03 00 47 00 03 B8 5F (read three-axis high-frequency vibration displacement)

Return: 50 03 06 FDNFXH FDNFXL FDNFYH FDNFYL FDNFZH FDNFZL CRCH CRCL

FDNFX[15:0]=(((short)FDNFXH <<8)|FDNFXL);

FDNFY[15:0]=(((short)FDNFYH <<8)|FDNFYL);

FDNFZ[15:0]=(((short)FDNFZH <<8)|FDNFZL);

MODBOUSMODEL (High-speed mode)

Register Name: MODBOUSMODEL

Register address: 98 (0x62)

Read/write direction: R/W

Default value: 0x0000

Bit	NAME	FUNCTION
15:0	SAVE[15:0]	High-speed mode is 0x0001

Example: Send: 50 06 00 69 B5 88 22 A1 (unlocked within 10S) Return: 50 06 00 69 B5 88 22 A1

50 06 00 62 00 01 E4 55 (high speed mode) return (230400 Baud)

Note: After the transmission is completed, the high-speed mode is entered. This mode actively returns high-frequency dynamic displacement data. At this time, no instructions can be sent. The normal mode can be

restored after power is cut off.

In high-speed mode, do not send setup and save commands to avoid incorrectly modifying the sensor configuration. If you want to exit high-speed mode, power on the sensor again.

CUTOFFFREQI, CUTOFFFREQF (cutoff frequency)

Register name: CUTOFFFREQI (integer 0~100)

Register address: 99(0x63)

Read/write direction: R/W

Default value: 0x000A

Bit	NAME	FUNCTION
15:2		
1:0	CUTOFFFREQI[1:0]	Cut-off frequency is used to filter out the interference of other clutter on the sensor, which can be set between 0.00~200.00Hz

Example: Set the cutoff frequency to 10.99 Hz

Send: 50 06 00 69 B5 88 22 A1 (unlocked within 10S) Return: 50 06 00 69 B5 88 22 A1

50 06 00 63 00 0A F4 52 (Set the integer part of the cutoff frequency to 10) returns: 50 06 00 63 00 0A F4 52

50 06 00 64 00 63 85 BD (Set the fractional part of the cutoff frequency to 99) returns: 50 06 00 64 00 63 85 BD

50 06 00 00 00 00 84 4B (save) returns: 50 06 00 00 00 00 84 4B

The cutoff frequency setting requires the use of two registers, CUTOFFFREQI and CUTOFFFREQF.

Description of the decimal part of the cutoff frequency: set the decimal value x100 (set .99, the actual decimal part needs to be set to 99)

Register Name: CUTOFFFREQF (setting a decimal point of 0 to 99 is equivalent to setting it to 0.00 to 0.99)

Register address: 100(0x64)

Read/write direction: R/W

Default value: 0x000A

Bit	NAME	FUNCTION
15:2		
1:0	CUTOFFFREQF[1:0]	Cut-off frequency is used to filter out the interference of other clutter on the sensor, which can be set between 0.00~200.00Hz

Example: Send: 50 06 00 69 B5 88 22 A1 (unlocked within 10S) Return: 50

06 00 69 B5 88 22 A1

50 06 00 63 00 0A F4 52 (Set the integer part of the cutoff frequency to 10) returns: 50 06 00 63 00 0A F4 52

50 06 00 64 00 63 85 BD (Set the fractional part of the cutoff frequency to 99) returns: 50 06 00 64 00 63 85 BD

50 06 00 00 00 00 84 4B (save) returns: 50 06 00 00 00 00 84 4B

The cutoff frequency setting requires the use of two registers, CUTOFFFREQI and CUTOFFFREQF.

Explanation of the decimal part of the cutoff frequency: multiply the set decimal value by 100 (set .99, the actual decimal part needs to be set to 99)

SAMPLEFREQ (detection period)

Register Name: SAMPLEFREQ

Register address: 101 (0x65)

Read/write direction: R/W

Default value: 0x0064

Bit	NAME	FUNCTION
15:2		
1:0	SAMPLEFREQ [1:0]	The detection cycle, its reciprocal is the amount of data output per second, can be set

		between 1~200Hz

Example: Send: 50 06 00 69 B5 88 22 A1 (unlocked within 10S) Return: 50 06 00 69 B5 88 22 A1

50 06 00 65 00 64 14 53 (set the detection cycle to 100Hz) returns: 50 06 00 65 00 64 14 53

50 06 00 00 00 00 84 4B (save) returns: 50 06 00 00 00 00 84 4B

7. FAQ

7.1 The return frequency is too low in normal mode

Cause: The baud rate is set too low

7.2 The number of recorded data frames in normal mode is too small

Reason: In normal mode, the modbus communication protocol is a question-and-answer protocol. The higher the baud rate is, the higher the frequency of data reading.

7.3 Unable to exit in high-speed mode

Cause: The sensor is not powered off. Power off the sensor, then power it back on, and the sensor will automatically return to normal mode. At this time, you can use the host computer to search for devices, or add devices yourself.

7.4 No data after power on again

Reason 1: The baud rate of the host computer is set incorrectly. Click Search Device

Reason 2: The serial port is lost. You can check whether the serial port exists. If the device cannot be found, you can re-plug the 3-in-1 or 6-in-1, refresh the computer, find the recognized COM port and reconnect it.

7.5 The host computer cannot search for the device

Cause: The sensor address or baud rate may have been modified. Please be patient and the search process may take several minutes.